

IN THE CLAIMS:

- 1 1. (Currently Amended) Method for comparing a first content with a second content to
2 determine whether the contents are identical, ~~the method comprising the steps of:~~
3 storing the first content in a cache;
4 identifying a protocol encoding the first content and second content;
5 computing a first signature of the first content and a second signature of the sec-
6 ond content, wherein the first signature has one or more unique protocol markers that are
7 generated from transformation during encoding and the second signature has one or more
8 unique protocol markers that are generated from transformation during encoding; and
9 comparing the one or more unique protocol markers of the first computed signa-
10 ture with the one or more unique protocol markers the second signature to determine
11 whether the first content is identical to the second content; and
12 storing in the cache the second content, in response to determining the first con-
13 tent is not identical to the second content.
- 1 2. (Currently Amended) The method of claim 1 further comprising ~~the steps of:~~
2 selecting a first set of data segments from the first content and a second set of data
3 segments from the second content; and
4 using the selected first set of data segments and the second set of data segments to
5 compute the first signature and the second signature.
- 1 3. (Original) The method of claim 2 wherein the selected first set of data segments and
2 second set of data segments comprise locations associated with one or more protocol
3 markers.

- 1 4. (Currently Amended) The method of claim 1 wherein the step of computing the sig-
2 nature of the first content and the signature of the second content further comprises ~~the~~
3 ~~steps of~~:
- 4 identifying the one or more protocol markers associated with the first content; and
5 identifying the one or more protocol markers associated with the second content.
- 1 5. (Original) The method of claim 4 wherein the one or more protocol markers associ-
2 ated with the first content comprises discrete cosine coefficients.
- 1 6. (Original) The method of claim 4 wherein the one or more protocol markers associ-
2 ated with the second content comprises discrete cosine coefficients.
- 1 7. (Original) The method of claim 4 wherein the one or more protocol markers associ-
2 ated with the first content comprises motion vectors.
- 1 8. (Original) The method of claim 4 wherein the one or more protocol markers associ-
2 ated with the second content comprises motion vectors.
- 1 9. (Currently Amended) The method of claim 4 further comprising ~~the steps of~~:
2 identifying a length of the first content; and
3 identifying a length of the second content.
- 1 10. (Currently Amended) A content comparator executing on a computer, the content
2 comparator adapted to compare a first content with a second content, the comparator
3 comprising:
4 a protocol identification module configured to identify a first protocol associated
5 with the first content and a second protocol associated with the second content;
6 a plurality of data segmentation modules configured to select a set of data seg-
7 ments from each of the first content and the second content;

a plurality of signature computation modules configured to generate a first signature of the first content and a second signature of the second content, wherein the first signature has one or more unique protocol markers that are generated from transformation during encoding and the second signature has one or more unique protocol markers that are generated from transformation during encoding; and

a signature comparison module configured to compare the first signature with the second signature; and

a cache configured to store the first content and to store the second content if the signature comparison module determines the first signature of the first content and the second signature of the second content do not match.

11. (Currently Amended) An apparatus for comparing a first content with a second content, the apparatus comprising:

means for storing the first content in a cache;

means for identifying a protocol encoding the first content and the second content;

means for selecting a set of data segments from the first content and the second content;

means for computing a signature of the first content and a signature of the second content, wherein the first signature has one or more unique protocol markers that are generated from transformation during encoding and the second signature has one or more unique protocol markers that are generated from transformation during encoding; and

means for comparing the computed signature of the first content with the computed signature of the second content; and

means for storing in the cache the second content, in response to determining the first content is not identical to the second content.

12. (Original) The apparatus of claim 11 wherein the selected data segments comprises locations associated with one or more protocol markers.

1 13. (Currently Amended) The apparatus of claim 11 wherein the means for computing
2 the signature of the first content and the signature of the second content further com-
3 prises:

4 means for identifying the one or more protocol markers associated with the first
5 content; and

6 means for identifying the one or more protocol markers associated with the sec-
7 ond content.

1 14. (Original) The apparatus of claim 13 wherein the one or more protocol markers as-
2 sociated with the first content comprises discrete cosine coefficients.

1 15. (Original) The apparatus of claim 13 wherein the one or more protocol markers as-
2 sociated with the second content comprises discrete cosine coefficients.

1 16. (Original) The apparatus of claim 13 wherein the one or more protocol markers as-
2 sociated with the first content comprises motion vectors.

1 17. (Original) The apparatus of claim 13 wherein the one or more protocol markers as-
2 sociated with the second content comprises motion vectors.

1 18. (Original) The apparatus of claim 13 further comprises:
2 means for identifying a length of the first content; and
3 means for identifying a length of the second content.

1 19. (Currently Amended) A method to compare a first content with a second content in a
2 network storage environment, ~~the method comprising the steps of:~~
3 receiving the first content;
4 computing a signature of the first content, wherein the signature of the first content
5 has a set of protocol markers that are generated from transformation during encoding;

6 storing in a cache the first content;
7 comparing the computed signature of the first content with a signature of the second
8 content, wherein the signature of the second content has a set of protocol markers that are
9 generated from transformation during encoding; and
10 identifying, if the computed signature of the first content matches the signature of the
11 second content, that the first content is identical to the second content; and
12 terminating transmission of the second content, in response to identifying the first
13 content is identical to the second content.

1 20. (Currently Amended) The method of claim 19 wherein the step of computing the
2 signature of the first content further comprises ~~the steps of:~~

3 identifying ~~a~~ the set of protocol markers associated with the content; and
4 generating the signature from the identified set of protocol markers.

1 21. (Previously Presented) The method of claim 20 wherein the set of protocol markers
2 further comprise a set of discrete cosine coefficients.

1 22. (Previously Presented) The method of claim 20 wherein the set of protocol markers
2 further comprises one or more motion vectors.

1 23. (Original) The method of claim 19 wherein a size of the received content is utilized
2 in creating the signature.

1 24. (Currently Amended) A method for identifying content using a protocol associated
2 with the content as a signature, ~~the method comprising the steps of:~~

3 determining the protocol associated with the content;
4 identifying a set of protocol markers associated with the protocol;
5 obtaining a set of protocol markers from the content using the set of protocol
6 markers associated with the protocol; ~~and~~

7 generating a signature of the content using the identified set of protocol markers;
8 storing the content to a cache.

1 25. (Original) The method of claim 24 wherein the identified markers are within a sub-
2 set of the entire content.

1 26. (Original) The method of claim 24 wherein a size associated with the content is util-
2 ized to uniquely identify the content.

1 27. (Original) The method of claim 24 wherein the signature is utilized in a network
2 caching device to determine whether data should be forwarded from the network caching
3 device.

1 28. (Original) The method of claim 24 wherein the signature is utilized to determine if a
2 local copy of the content should be accessed.

1 29. (Original) The method of claim 24 wherein the signature is utilized to determine if a
2 remote copy of the content should be accessed.

1 30. (Currently Amended) A protocol marker identifier executing on a computer for gen-
2 erating a signature of a content, comprising:

3 a protocol identification module configured to receive the content and to identify
4 a protocol associated with the content;

5 a data segmentation module configured to select a set of data segments from the
6 content; ~~and~~

7 a signature computation module configured to generate the signature from the set
8 of data segments, wherein the signature is a set of protocol markers that are generated
9 from transformation during encoding; and

10 a cache configured to store the content.

1 31. (Cancelled)

1 32. (Cancelled)

1 33. (Currently Amended) The protocol marker identifier of claim ~~32~~30 wherein the set
2 of protocol markers comprises a set of discrete cosine transform coefficients.

1 34. (Currently Amended) A network caching device adapted to utilize a signature asso-
2 ciated with a protocol for caching decisions, the network caching device comprising:
3 means for determining a protocol of new a contents;
4 means for computing a signature of the new content, wherein the signature of the
5 new content is a set of protocol markers that are generated from transformation
6 during encoding; and
7 means for comparing the computed signature of the new content with ~~a~~-signatures
8 of other contents;
9 means for determining the signature of the new content is not identical to signa-
10 tures of other contents; and
11 means for storing the new content to a cache, in response to determining the sig-
12 nature of the new content is not identical to signatures of other contents.

1 35. (Currently Amended) The network caching device of claim 34 wherein the means
2 for computing a signature further comprises:
3 means for identifying ~~a~~the set of markers associated with the protocol associated
4 with the new content; and
5 means for obtaining appropriate markers associated with the content.

1 36. (Currently Amended) A method, comprising:
2 storing a first content in a cache;

3 identifying a protocol encoding of ~~a~~the first content and a second content;
4 identifying a first signature of the first content and a second signature of the sec-
5 ond content, wherein each signature contains one or more protocol markers identifying
6 the content, where the one or more protocols are generated from one or more transforma-
7 tions of each content during encoding;
8 comparing one or more protocol markers within the first signature and the second
9 signature to determine whether the first content is identical to the second content; and
10 terminating transmission of the second content, if in response to determining the
11 protocol markers of the first content and the second content are identical.

1 37. (Previously Presented) The method of claim 36, further comprising:
2 computing the first signature of the first content as the first content is converted
3 from raw data to the protocol; and
4 computing the second signature of the second content as the second content is
5 converted from raw data to the protocol.

1 38. (Previously Presented) The method of claim 36, further comprising:
2 continuing transmission of the second content, if the first content and the second
3 content are not identical.

1 39. (Previously Presented) The method of claim 36, wherein the one or more protocol
2 markers associated with the first content comprises discrete cosine coefficients.

1 40. (Previously Presented) The method of claim 36, wherein the one or more protocol
2 markers associated with the second content comprises discrete cosine coefficients.

1 41. (Previously Presented) The method of claim 36, wherein the one or more protocol
2 markers associated with the first content comprises motion vectors.

1 42. (Previously Presented) The method of claim 36, wherein the one or more protocol
2 markers associated with the second content comprises motion vectors.

1 43. (Previously Presented) The method of claim 36, further comprising:
2 identifying a length of the first content; and
3 identifying a length of the second content.

1 44. (Currently Amended) A method, comprising:
2 determining a protocol of a new content;
3 computing a signature of the new content, wherein the signature of the new con-
4 tent is a set of protocol markers that are generated from transformation during encoding;
5 comparing the computed signature of the new content with other content stored in
6 a network cache to determine if the new content is identical to any the other content on
7 the network cache; ~~and~~
8 terminating transmission of the new content, if in response to determining the new
9 content is identical any other content on the network cache; and
10 storing the new content in the network cache, in response to determining the new
11 content is not identical to any other content within the network cache.

1 45. (Cancelled)

1 46. (Previously Presented) The network caching device of claim 44 wherein the step of
2 computing a signature further comprises:
3 identifying a set of markers associated with the protocol associated with the con-
4 tent; and
5 obtaining appropriate markers associated with the content.

1 Please add new claims 47 *et al.*

1 47. (New) A method, comprising:

2 storing a first content in a cache, wherein the first content has a first signature
3 with a first set of protocol markers that are generated from transformation during encod-
4 ing;

5 identifying a protocol type of a second content;

6 computing a signature of the second content, wherein the second signature has a
7 second set of protocol markers that are generated from transformation during encoding;

8 comparing the first set of protocol markers to the second set of protocol markers;

9 determining the first set of protocol markers match the second set of protocol
10 markers;

11 in response to determining the first set of protocol markers match the second set
12 of protocol markers, terminating transmission of the second content to the cache; and

13 in response to determining the first set of protocol markers do not match the sec-
14 ond set of protocol markers, storing the second content in the cache.

1 48. (New) The method of claim 47, further comprising:

2 in response to determining the first set of protocol markers do not match the sec-
3 ond set of protocol markers, flushing the first content from the cache.